LISTING OF THE CLAIMS

1-10. (Cancelled)

11. (Previously presented) A method of producing a transgenic plant having an increased level of fatty acids in seed comprising, transforming a plant cell with an expression vector comprising a lipid metabolism protein (LMP) nucleic acid, generating from the plant cell the transgenic plant, analyzing the production of fatty acids in seeds of the transgenic plant, and selecting a transgenic plant having an increased level of fatty acids as compared to an untransformed wild type variety of the plant, wherein the nucleic acid comprises a polynucleotide sequence selected from the group consisting of:

a) a polynucleotide sequence as defined in SEQ ID NO:23;

b) a polynucleotide sequence encoding a polypeptide as defined in SEQ ID NO:24;

c) a polynucleotide sequence having at least 70% sequence identity with the LMP nucleic acid of a) or b) above,

d) a polynucleotide sequence encoding a polypeptide having at least 70% identity to the amino acid sequence of SEQ ID NO: 24; and

e) a polynucleotide sequence that hybridizes to the complement of the full-length nucleic acid of a) or b) above under stringent conditions of 6X sodium chloride/sodium citrate (SSC) at 65°C followed by one or more washes in 0.2 X SSC at 50 to 65°C.

12. (Previously presented) The method of Claim 11, wherein the LMP nucleic acid comprises the polynucleotide sequence of SEQ ID NO:23.

13. (Previously presented) The method of Claim 11, wherein the LMP nucleic acid comprises a polynucleotide sequence encoding the polypeptide of SEQ ID NO:24.

14-15. (Cancelled)

16. (Original) The method of Claim 11, wherein the LMP nucleic acid is operatively linked to a heterologous promoter selected from the group consisting of a seed-specific promoter, a root-specific promoter, and a non-tissue-specific promoter.

17-19. (Cancelled).

20. (Previously presented) The method of Claim 11, wherein the LMP nucleic acid comprises a polynucleotide having at least 90% sequence identity with the LMP nucleic acid of a) or b) of Claim 11.

21. (Previously presented) The method of Claim 11, wherein the nucleic acid comprises a nucleic acid that hybridizes to the complement of the full-length nucleic acid of a) or b) of Claim 11 under stringent conditions of 6X sodium chloride/sodium citrate (SSC) at 65°C followed by one or more washes in 0.2 X SSC at 50 to 65°C.

22. (Previously presented) The method of Claim 11, wherein the LMP nucleic acid comprises a polynucleotide sequence encoding a polypeptide having at least 70% identity with the amino acid sequence of SEQ ID NO: 24.

23. (Cancelled).

24. (Previously presented) A method of increasing the level fatty acids in seed of a plant comprising, transforming a plant cell with an expression vector comprising a lipid metabolism protein (LMP) nucleic acid, generating from the plant cell a transgenic plant, and selecting a transgenic plant having an increased level of fatty acids as compared to an untransformed wild type variety of the plant, wherein the nucleic acid comprises a polynucleotide sequence selected from the group consisting of:

a) a polynucleotide sequence as defined in SEQ ID NO:23;

b) a polynucleotide sequence encoding a polypeptide as defined in SEQ ID NO:24;

c) a polynucleotide sequence having at least 70% sequence identity with the nucleic acid of a) or b) above;

d) a polynucleotide encoding a polypeptide having at least 70% identity with the amino acid sequence of SEQ ID NO: 24; and

e) a polynucleotide sequence that hybridizes to the complement of the full-length nucleic acid of a) or b) above under stringent conditions of 6X sodium chloride/sodium citrate (SSC) at 65°C followed by one or more washes in 0.2 X SSC at 50 to 65°C.

25-32. (Cancelled).

33. (Previously presented) The method of Claim 11, wherein the nucleic acid encodes a polypeptide that contains a lipid metabolism domain.

34. (Previously presented) The method of Claim 33, wherein the nucleic acid encodes the polypeptide of SEQ ID NO:24.

35-37. (Cancelled).

38. (Previously presented) The method of Claim 11, wherein the plant is a dicotyledonous plant.

39. (Previously presented) The method of Claim 11, wherein the plant is a monocotyledonous plant.

40. (Previously presented) The method of Claim 11, wherein the plant is an oil producing species.

41-46. (Cancelled).

47. (Previously presented) The method of Claim 11, wherein the nucleic acid comprises a polynucleotide encoding a polypeptide having at least 80% sequence identity to SEQ ID NO: 24.

48. (Previously presented) The method of claim 11, wherein the plant is selected from the group consisting of rapeseed, canola, linseed, soybean, sunflower, maize, oat, rye, barley, wheat, sugarbeet, tagetes, cotton, oil palm, coconut palm, flax, castor, and peanut.

49. (Previously presented) The method of claim 24, wherein the LMP nucleic acid is operatively linked to a heterologous promoter selected from the group consisting of a seed-specific promoter, a root-specific promoter, and a non-tissue-specific promoter.

50. (Previously presented) The method of claim 24, wherein the plant is a dicotyledonous plant.

51. (Previously presented) The method of claim 24, wherein the plant is a monocotyledonous plant.

52. (Previously presented) The method of claim 24, wherein the plant is an oil producing species.

53. (Previously presented) The method of claim 24, wherein the LMP nucleic acid comprises a polynucleotide having at least 90% sequence identity with the LMP nucleic acid of a) or b) of claim 24.

54. (Previously presented) The method of claim 24, wherein the LMP nucleic acid comprises a polynucleotide sequence encoding a polypeptide having at least 90% identity with the amino acid sequence of SEQ ID NO: 24.

55. (Previously presented) The method of claim 24, wherein the plant is selected from the group consisting of rapeseed, canola, linseed, soybean, sunflower, maize, oat, rye, barley, wheat, sugarbeet, tagetes, cotton, oil palm, coconut palm, flax, castor, and peanut.